



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-0602; Project Identifier MCAI-2020-01211-A]

RIN 2120-AA64

Airworthiness Directives; Viking Air Limited (Type Certificate Previously Held by Bombardier Inc. and de Havilland Inc.) Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2002-14-28, which applies to all de Havilland Inc. (type certificate currently held by Viking Air Limited) Model DHC-2 Mk. I, DHC-2 Mk. II, and DHC-2 Mk. III airplanes. AD 2002-14-28 establishes a life limit for the front fuselage struts and requires repetitively replacing the front fuselage struts every 15 years or repetitively inspecting the struts for corrosion or fatigue damage and replacing when the damage exceeds a certain level. Since the FAA issued AD 2002-14-28, Transport Canada superseded its mandatory continuing airworthiness information (MCAI) to correct this unsafe condition on these products. This proposed AD would require either doing recurring visual inspections, borescope inspections, and non-destructive inspections (NDIs) of the struts and airframe lugs with corrective action as necessary or replacing the struts every 15 years and doing recurring NDIs of the airframe lugs with corrective action as necessary. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <https://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Viking Air Limited Technical Support, 1959 de Havilland Way, Sidney, British Columbia, Canada, V8L 5V5; phone: (800) 663-8444; fax: (250) 656-0673; email: technical.support@vikingair.com; website: <https://www.vikingair.com/support/service-bulletins>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110.

Examining the AD Docket

You may examine the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2022-0602; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the MCAI, any comments received, and other information. The street address for Docket Operations is listed above.

FOR FURTHER INFORMATION CONTACT: Aziz Ahmed, Aviation Safety Engineer, New York ACO Branch, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: (516) 228-7329; email: aziz.ahmed@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2022-0602; Project Identifier MCAI-2020-01211-A” at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to <https://www.regulations.gov>, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this proposed AD.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Aziz Ahmed, Aviation Safety Engineer, New York ACO Branch, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2002-14-28, Amendment 39-12828 (67 FR 47684, July 22, 2002) (AD 2002-14-28), for all de Havilland Inc. (type certificate currently held by Viking Air Limited) Model DHC-2 Mk. I, DHC-2 Mk. II, and DHC-2 Mk. III airplanes. AD 2002-14-28 establishes a life limit for the front fuselage struts and requires repetitively replacing the front fuselage struts every 15 years or repetitively inspecting the struts for corrosion or fatigue damage and replacing when the damage exceeds a certain level. The FAA issued AD 2002-14-28 to prevent structural failure of the front fuselage caused by corrosion or fatigue damage to the struts that develops over time, which could result in reduced or loss of airplane control.

Actions Since AD 2002-14-28 Was Issued

Since the FAA issued AD 2002-14-28, the type certificate holder for Model DHC-2 Mk. I, DHC-2 Mk. II, and DHC-2 Mk. III airplanes changed from de Havilland Inc. to Viking Air Limited.

Transport Canada, which is the aviation authority for Canada, superseded its prior AD on this unsafe condition, AD CF-98-37R1, dated August 20, 1999, and issued AD CF-2020-22, dated June 5, 2020 (referred to after this as “the MCAI”), to introduce a revised inspection schedule for the front fuselage struts from previously published schedules to alleviate the burden of mandatory replacement every 15 years or ultrasonic inspections every 5 years. The MCAI states:

Operators have reported incidents of corrosion of the DHC-2 front fuselage struts which are installed on each side of the flight compartment windshield. Deterioration of the airframe lugs to which the struts are attached has also been reported. The actions specified by this [Transport Canada] AD are intended to prevent structural failure of the front fuselage caused by damage to the fuselage struts and airframe lugs that develops over time, which could result in the loss of airframe structural integrity.

AD CF-98-37 issued 29 September 1998 mandated a 15-year life limit on the strut. It also prohibited installation of part numbers (P/Ns) C2FS209 and C2FS210.

Revision 1, CF-98-37R1, introduced repetitive inspection as an alternative to replacement of the strut. Detailed visual inspection was required to begin within 12 months from the effective date of the [Transport Canada] AD and be repeated every 12 months regardless of the age of the strut. Ultrasonic thickness measurements were required to begin within 24 months from the effective date of the [Transport Canada] AD and be repeated every 5 years regardless of the age of the strut.

After AD CF-98-37R1 was issued, it was determined that the repetitive inspections are not required to be started until the strut has accumulated 15 years since installation. As a result, Transport Canada (TC) approved several AMOCs [alternative methods of compliance] to authorize starting the inspections at that time.

Since the issuance of AD CF-98-37R1, TC has received several Service Difficulty Reports (SDRs) indicating that

the corrective actions of that [Transport Canada] AD have not been effective at controlling damage of the fuselage struts to an acceptable level.

Viking Air Ltd. (Viking) has determined that a modified program of recurring visual inspection, borescope inspection and non-destructive inspection (NDI) of the struts and airframe lugs would be more effective than the existing inspection program. This program modifies affected parts by introducing a hole to permit a borescope inspection if that hole does not already exist in the parts.

To implement the modified inspection program, Viking has published Service Bulletin (SB) V2/0010 and Technical Bulletin (TB) V2/00002 that provide specific instructions for performing the modification, inspections and measurements required by this [Transport Canada] AD. The SB and TB also define the follow-on actions associated with those inspections and measurements.

Viking has also developed a version of the front fuselage strut with improved resistance to corrosion and with provisions for borescope inspection. The improved struts have been assigned P/Ns C2FS3281A-9 (left strut) and C2FS3282A-9 (right strut).

The corrective actions of this [Transport Canada] AD differ from those of AD CF-98-37R1 in the following ways:

- AD CF-98-37R1 included the details for all of the corrective actions, it did not require reference to other documents. For this [Transport Canada] AD, the details of the corrective actions are now specified in a SB and a TB.
- AD CF-98-37R1 required repetitive detailed visual inspection (DVI) of the airframe lugs. This [Transport Canada] AD requires repetitive DVI and NDI of the airframe lugs.
- AD CF-98-37R1 only permitted installation of P/Ns C2FS3281A and C2FS3282A. This [Transport Canada] AD permits installation of those parts, the superseding Viking P/Ns, parts installed by TC-issued or -accepted Supplemental Type Certificate (STC) or Part Manufacturing Approval (PMA) and Part Design Approval (PDA) parts that are approved for installation in DHC-2 as replacements for P/Ns C2FS3281A and C2FS3282A. Those are all approved parts.
- AD CF-98-37R1 did not specify to remove parts from the aeroplane to perform inspections. This [Transport Canada]

AD requires repetitive removal of the struts from the aeroplane followed by a NDI of the airframe lugs. This requirement applies to DHC-2 where the struts are being replaced when they reach 15 years since installation. It also applies to DHC-2 where the struts are kept in service and inspected as required by the SB and TB.

- AD CF-98-37R1 required the visual inspection to start within 12 months from the [Transport Canada] AD effective date and the NDI to start within 24 months from the [Transport Canada] AD effective date. This [Transport Canada] AD requires the repetitive inspections to start no later than when the struts have accumulated 15 years since initial installation.
- AD CF-98-37R1 required repetitive ultrasonic thickness measurement for all parts. This [Transport Canada] AD only requires that measurement if corrosion is detected during an inspection.
- AD CF-98-37R1 required visual inspection of the exterior surfaces of the strut with the strut installed in the aeroplane. For struts that have accumulated more than 15 years since first installation, this [Transport Canada] AD continues to require visual inspection of the accessible exterior surfaces of the strut with the strut installed. This [Transport Canada] AD also includes repetitive requirements for:
 - Inspection of the fillet sealant;
 - Borescope inspection of the interior of the strut; and
 - Removal of the strut from the aeroplane followed by visual inspection of the entire strut and NDI of the strut end fittings.

All TC-issued or -accepted AMOCs with AD CF-98-37R1 are cancelled on the effective date of this [Transport Canada] AD. Parts in service must be replaced or modified, inspected and maintained in accordance with the requirements of this [Transport Canada] AD unless TC approves AMOCs [alternative methods of compliance] with the requirements of this [Transport Canada] AD.

You may examine the MCAI in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2022-0602.

Related Service Information under 1 CFR Part 51

The FAA reviewed Viking DHC-2 Beaver Technical Bulletin No. V2/00002, Revision ‘A,’ dated June 20, 2019. The service information specifies procedures for a

detailed visual, borescope, and non-destructive testing inspection of the front fuselage struts and airframe lugs.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Other Related Service Information

The FAA reviewed Viking DHC-2 Beaver Service Bulletin No. V2/0010, Revision 'NC,' dated April 3, 2020. The service information contains a detailed and revised schedule for a detailed visual inspection of the forward-lower and aft-upper strut attachment points on the fuselage (mating airframe lugs) every 12 months, borescope inspection of the strut interior surfaces every 5 years, non-destructive testing (NDT) inspection of the fuselage strut fork ends and lugs every 15 years, replacement of each fuselage strut every 15 years, and replacement of the 5-year ultrasonic thickness measurement as an option to the 15-year life limit.

FAA's Determination

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI and service information referenced above. The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed AD Requirements

This proposed AD would require accomplishing the actions specified in the service information described previously. This proposed AD does not retain any of the requirements from AD 2002-14-28.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 143 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per airplane	Cost on U.S. operators
Visual, borescope, and NDT inspections of the front fuselage struts and airframe lugs	80 work-hours x \$85 per hour = \$6,800 per inspection cycle	Not applicable	\$6,800 per inspection cycle	\$972,400 per inspection cycle
Detailed visual inspection	4 work-hours x \$85 per hour = \$340 per inspection cycle	Not applicable	\$340 per inspection cycle	\$48,620 per inspection cycle
Borescope and detailed visual inspection	6 work-hours x \$85 per hour = \$510 per inspection cycle	Not applicable	\$510 per inspection cycle	\$72,930 per inspection cycle
Replace left-hand fuselage strut	54 work-hours x \$85 per hour = \$4,590	\$2,331.40	\$6,921.40	\$989,760.20
Replace right-hand fuselage strut	54 work-hours x \$85 per hour = \$4,590	\$2,331.40	\$6,921.40	\$989,760.20

The extent of damage found during the proposed inspections could vary significantly from airplane to airplane. The FAA has no way of determining how much damage may be found on each airplane, the cost to repair damaged parts on each airplane, or the number of airplanes that may require repair.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, and Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds

necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA has determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive 2002-14-28, Amendment 39-12828 (67 FR 47684, July 22, 2002); and
- b. Adding the following new airworthiness directive:

Viking Air Limited (type certificate previously held by Bombardier Inc. and de Havilland Inc.): Docket No. FAA-2022-0602; Project Identifier MCAI-2020-01211-A.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2002-14-28, Amendment 39-12828 (67 FR 47684, July 22, 2002) (AD-2002-14-28).

(c) Applicability

This AD applies to Viking Air Limited (type certificate previously held by Bombardier Inc. and de Havilland Inc.) Model DHC-2 Mk. I, DHC-2 Mk. II, and DHC-2 Mk. III airplanes, all serial numbers, certificated in any category.

(d) Subject

Joint Aircraft System Component (JASC) Code 5300, Fuselage Structure (General).

(e) Unsafe Condition

This AD was prompted by mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI identifies the unsafe condition as the development of damage to the front fuselage struts and airframe lugs over time. The FAA is issuing this AD to address this condition. The unsafe condition, if not addressed, could result in failure of the front fuselage struts, which could lead to failure of the airframe and loss of airplane control.

(f) Definition of Serviceable Part

For purposes of this AD, a “serviceable part” is a front fuselage strut that has a part number (P/N) other than P/N C2FS209 and C2FS210 and meets the conditions in either paragraph (f)(1) or (2) of this AD:

- (1) Has accumulated less than 15 years since first installation on an airplane; or
- (2) Has accumulated 15 or more years since first installation on an airplane and has been inspected in accordance with the requirements of this AD.

(g) Compliance

Comply with the initial actions in paragraph (h) of this AD at the applicable compliance time in paragraph (g)(1), (2), or (3) of this AD, unless already done.

(1) For airplanes with a front fuselage strut that has been installed for less than 15 years as of the effective date of this AD: Before each front fuselage strut accumulates 15 years since first installation on an airplane.

(2) For airplanes with a front fuselage strut that has been installed for more than 15 years as of the effective date of this AD or with a front fuselage strut where the date of first installation on an airplane is unknown and the ultrasonic inspection required by paragraph (d)(2) of AD 2002-14-28 has not been done within the last 5 years: Before further flight.

(3) For airplanes with a front fuselage strut that has been installed for more than 15 years as of the effective date of this AD or with a front fuselage strut where the date of first installation on an airplane is unknown and the ultrasonic inspection required by paragraph (d)(2) of AD 2002-14-28 has been done within the last 5 years: Within 5 years from the date of the last ultrasonic inspection done in accordance with paragraph (d)(2) of AD 2002-14-28.

(h) Initial Actions

(1) Do the actions in paragraph (h)(1)(i) or (ii) of this AD.

(i) Remove the front fuselage struts from service and install and seal serviceable parts in accordance with steps w. and y. through ii. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking DHC-2 Beaver Technical Bulletin No. V2/00002, Revision A, dated June 20, 2019 (Viking TB V2/00002); or

(ii) Do visual and borescope inspections of the front fuselage struts and non-destructive testing (NDT) inspections of the fuselage strut fork ends for corrosion and cracks in accordance with steps m. through p. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002, except you are not required to contact the manufacturer. Instead, do the actions in paragraph (h)(3) of this AD.

(2) Do visual and NDT inspections of the mating airframe lug surfaces and bolt holes for corrosion and cracks and replace if necessary in accordance with steps q., r., t.,

and u. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002, except you are not required to contact the manufacturer.

(3) If, during any inspection required by paragraph (h)(1)(ii) of this AD, any crack or corrosion is found, before further flight, do one of the following:

(i) Remove the part from service and install and seal a serviceable part in accordance with steps w. and y. through ii. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002; or

(ii) If the wall thickness of the part is 0.030 inch or more, repair in accordance with step s(2) of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002; or

(iii) Repair using a method approved by the Manager, New York ACO Branch, FAA; Transport Canada; or Viking Air Limited's Transport Canada Design Organization Approval (DOA). If approved by the DOA, the approval must include the DOA-authorized signature.

(i) Repetitive Actions

(1) After completing the actions in paragraphs (h)(1)(ii) and (2) of this AD, unless already done, do the following:

(i) At intervals not to exceed 12 months, except when complying with paragraph (i)(1)(ii) or (2) of this AD, clean and visually inspect the front fuselage struts and airframe lugs for corrosion and cracking in accordance with steps n., p., and q. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002. If there is a crack or any corrosion, before further flight, comply with the actions in paragraph (h)(3)(i), (ii), or (iii) of this AD.

(ii) At intervals not to exceed 5 years, except when complying with paragraph (i)(2) of this AD, do visual and borescope inspections of the front fuselage struts and a visual inspection of the airframe lugs for corrosion and cracking in accordance with steps m. through q. and t. of Section II.B.1. or II.B.2., as applicable to your airplane, of Viking TB V2/00002, except you are not required to contact the manufacturer. If there is a crack or any corrosion, before further flight, comply with the actions in paragraph (h)(3)(i), (ii), or (iii) of this AD.

(2) At intervals not to exceed 15 years, repeat the actions required by paragraph (h) of this AD.

(j) Alternative Methods of Compliance (AMOCs)

(1) The Manager, New York ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(k) Related Information

(1) For more information about this AD, contact Aziz Ahmed, Aviation Safety Engineer, New York ACO Branch, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: (516) 228-7329; email: aziz.ahmed@faa.gov.

(2) Refer to Transport Canada AD CF-2020-22, dated June 5, 2020, for more information. You may examine the Transport Canada AD in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2022-0602.

(3) For service information identified in this AD, contact Viking Air Limited Technical Support, 1959 de Havilland Way, Sidney, British Columbia, Canada, V8L 5V5; phone: (800) 663-8444; fax: (250) 656-0673; email: technical.support@vikingair.com; website: <https://www.vikingair.com/support/service-bulletins>. You may view this referenced service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 901 Locust, Kansas City, MO 64106. For information on the availability of this material at the FAA, call (817) 222-5110.

Issued on June 1, 2022.

Gaetano A. Sciortino, Deputy Director for Strategic Initiatives,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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